IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	:	HABETHA, et al.
Serial No.	:	10/597,543
Filed	:	July 28, 2006
Art Unit	:	2617
Examiner	:	AJIBADE AKONAI, OLUMIDE
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APPEAL BRIEF
On Appeal from Group Art Unit 2617

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Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed on September 8, 2010 and in response to the final Office Action of June 17, 2010.

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I. REAL PARTY IN INTEREST

The real party in interest of the above-identified application is Koninklijke Philips Electronics N.V., the assignee of record, whose assignment is recorded in the USPTO as of July 28, 2006 on four (4) pages beginning at Reel 018019, Frame 0233.

II. RELATED APPEALS AND INTERFERENCES

Appellants are not aware of any pending appeals, judicial proceedings, or interferences which may be related to, directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

a) Claims 1-33 and 35-37 are pending at the time of filing this Appeal Brief.

b) Claims 1-5, 7-15, 18, 19, 25, and 27-33 stand rejected in a final Office Action dated June 17, 2010, and are the subject of this appeal.

c) Claims 35-37 are allowed.

d) Claims 6, 16, 17, 20-24, and 26 are allowable if rewritten in independent form.

e) Claims 1, 35, and 37 are independent.

f) Claim 34 is canceled.

IV. STATUS OF AMENDMENTS

The claims listed in section "VIII. Claims Appendix" of this Appeal Brief correspond to the claims as submitted in Appellants' response filed on March 26, 2010 (in response to the non-final Office Action dated December 28, 2009). No claim amendments have been submitted following the response of March 26, 2010, nor are any amendments pending.

V. SUMMARY OF CLAIMED SUBJECT MATTER[1]

The claimed invention, as recited in claim 1, is directed to a method of decentralized medium access control in a communications network including a plurality of devices, (see Appellants' specification at least at Fig. 3B, page 5, lines 23-24 and page 6, line 25-page 7, line 7) comprising: dividing time into a sequence of at least one superframe (page 2, lines 30-31); and a first device of said plurality of devices transmitting in the superframe at a target beacon transmission time (TBTT) (page 4, lines 1-10) a beacon frame that includes a reservation for a planned transmission by a sender device during the superframe (page 17, lines 16-19).

[1] It should be explicitly noted that it is not Appellants' intention that the currently claimed or described embodiments be limited to operation within the illustrative embodiments described below beyond what is required by the claim language. Further description of the illustrative embodiments are provided indicating portions of the claims which cover the illustrative embodiments merely for compliance with requirements of this appeal without intending to read any further interpreted limitations into the claims as presented.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 1-4, 7-9, 11-15, 18, 19, 25, and 27-33 are properly rejected under 35 U.S.C. §102(e) as being anticipated by Salokannel et al. 7,245,947 ("Salokannel").

B. Whether claims 5 and 10 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over Salokannel in view of Kondylis et al. 6,665,311 ("Kondylis").

VII. ARGUMENT

Appellants respectfully traverse the rejections in accordance with the detailed arguments set forth below.

A. Claims 1-4, 7-9, 11-15, 18, 19, 25, and 27-33 are not properly rejected under 35 U.S.C. §102(e) as being anticipated by Salokannel**.**

1. Claim 1

Independent claim 1 requires:

> *A method of decentralized medium access control in a communications network including a plurality of devices, comprising:*
> *dividing time into a sequence of at least one superframe; and*
> *a first device of said plurality of devices transmitting in the superframe at a target beacon transmission time (TBTT)* ***a beacon frame that includes a reservation for a planned transmission by a sender device during the superframe***. [Emphasis added].

On pages 2-3 of the final Office Action, the Examiner asserts that Salokannel at col. 7, line 63-col. 8, line 2 reads on Appellants' claimed feature of "a beacon frame that includes a reservation for a planned transmission by a sender device during the superframe." Appellants respectfully traverse this rejection.

Salokannel relates to power-based control of an ad hoc wireless network. (Title). Salokannel at col. 7, line 62-col. 8, line 2 explains that each superframe in figure 5 includes a beacon period which is used to convey control information from the coordinator to the entire piconet. Salokannel describes that this control information may include information for the allocation of time slots to devices in the piconet.

However, an allocation of time slots is distinct from a reservation for a planned transmission, as particularly recited in claim 1. For example, a device may have time slots allocated to it by the coordinator, however the device may or may not have any information to send. There is no mention in Salokannel that the time slots are for a planned transmission during the beacon frame. The time slots in Salokannel are simply allocated. There is no mention or even a suggestion of a reservation for a planned transmission by a sender device during the superframe.

Thus, Salokannel only describes that the devices of the piconet communicate according to a TDMA frame structure that includes a beacon period, a contention access period, and a contention free period (col. 4, lines 28-32). The beacon period may include the allocation of time slots to devices in the piconet (col. 8, lines 1-2). However, the mere allocation of time slots does not indicate a reservation for a planned transmission by a sender device during the superframe. As such, the allocation of time slots is distinguished from a reservation for a planned transmission.

Accordingly, the rejection should be withdrawn because Salokannel does not disclose a beacon frame that includes a reservation for a planned transmission by a sender device during the superframe, as set forth in Appellants' claim 1.

Furthermore, Appellants respectfully assert that the teachings of Salokannel is in complete contrast to the requirements of claim 1 because Salokannel is related to a centralized system for control of an ad hoc wireless network; whereas, claim 1 requires a method of decentralized medium access control in a network. For example, Salokannel discloses a piconet which includes a coordinator device and a plurality of devices, where the coordinator device

controls the resources of the piconet. (Salokannel, column 4, lines 6-8). Although the coordinator device may transfer the control to another device within the piconet, the control functions remain centralized within one coordinator device. (Id., at column 4, lines 47-52). Nowhere does Salokannel disclose decentralized medium access control in a communications network.

In view of the above, Appellants respectfully submit that the features of claim 1 are not anticipated by Salokannel. Therefore, it is respectfully requested that the Board reverse the rejection of claim 1 under 35 U.S.C. §102(e).

2. Claims 2-4, 7-9, 11-15, 18, 19, 25, and 27-33

Each of claims 2-4, 7-9, 11-15, 18, 19, 25, and 27-33 ultimately depends from claim 1. Furthermore, each dependent claim includes additional distinguishing features. For each dependent claim, Appellants apply the above arguments from claim 1. Two examples of these distinguishing features are given below for claims 2 and 3. Thus, Appellants respectfully submit that the rejections of claims 2-4, 7-9, 11-15, 18, 19, 25, and 27-33 under 35 U.S.C. 102(e), are unfounded and should be reversed.

3. Claim 2

Appellants' claim 2 requires, in part, the features of:

> the sender including the reservation in a beacon frame in all superframes during which the reservation is active, and
> including, by a receiver device of the planned transmission, said reservation in a beacon frame in all superframes during which the reservation is active.

As recited in claim 2, the sender and the receiver device of the planned transmission include the reservation in a beacon frame in all superframes during which the reservation is

active.

The Office Action points to Salokannel at figs. 1 and 5, and col. 7, lines 62-67, and col. 8, lines 1-2 as allegedly disclosing the above features of claim 2. However, as pointed out above, Salokannel relates to a centralized single point coordinating device. Salokannel offers no discussion related to a method of decentralized medium access control in a network where both a sender and receiver device of the planned transmission include the reservation in a beacon frame, as particularly claimed by appellants.

4. Claim 3

Additionally, Appellants' claim 3 requires, in part, the feature of:

> grouping the beacon frame transmitted by each of the plurality of devices into the superframe. . . .

The Office Action alleges that Salokannel at fig. 5, and col. 7, lines 58-65 discloses the above features of claim 3. However, Salokannel relates to a centralized point coordination method for control of an ad hoc network. There is no discussion whatsoever by Salokannel that is related to grouping the beacon frame transmitted by each of the plurality of devices into the superframe.

B. Claims 5 and 10 are not properly rejected under 35 U.S.C. §103(a) as being unpatentable over Salokannel in view of Kondylis.

1. Claims 5 and 10

Each of claims 5 and 10 ultimately depends from claim 1 and includes the features of claim 1. Furthermore, each of dependent claims 5 and 10 includes additional distinguishing

features. Appellants apply the above arguments from claim 1 to each dependent claim as the particular interpretation of each claim requires. Kondylis does not cure the deficiencies of Solakannel as noted above with respect to claim 1. Thus, Appellants respectfully submit that the rejections of claims 5 and 10 under 35 U.S.C. 103(a), are unfounded and should be reversed.

CONCLUSION

In light of the above, Appellants respectfully submit that the rejections of claims 1-5, 7-15, 18, 19, 25, and 27-33 are in error, legally and factually, and must be reversed.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1.(previously presented) A method of decentralized medium access control in a communications network including a plurality of devices, comprising:

dividing time into a sequence of at least one superframe; and

a first device of said plurality of devices transmitting in the superframe at a target beacon transmission time (TBTT) a beacon frame that includes a reservation for a planned transmission by a sender device during the superframe.

2. (previously presented) The method of claim 1, wherein: said first device is the sender of said planned transmission; and

further comprising:

the sender including the reservation in a beacon frame in all superframes during which the reservation is active, and

including, by a receiver device of the planned transmission, said reservation in a beacon frame in all superframes during which the reservation is active.

3.(previously presented) The method of claim 1, further comprising grouping the beacon frame transmitted by each of the plurality of devices into the superframe as at least one beacon period having a starting point at a beacon period start time (BPST) and followed by a data transmission phase.

4.(previously presented) The method of claim 1, further comprising prior to a new or a change of an existing reservation of the sender device, the sender device negotiating with a receiver device of the transmission that is planned during the reservation.

5. (previously presented) The method of claim 4, said negotiation comprising:

an initiator device of the reservation transmitting a distributed reservation protocol (DRP)-Request message comprising at least one reservation description selected from the group

consisting of

a starting time, and a duration signalled by means of BPST or TBTT offset,

a reservation period,

a bitmap indicating the reserved times,

at least one time slot number,

a priority,

a channel/hopping indicator, and

a code sequence; and

in response to said DRP-Request, said negotiation further comprises at least one receiver device of the reservation transmitting a distributed reservation protocol (DRP)-Response message that includes an indicator selected from the group consisting of the proposed reservation is accepted, the proposed reservation is rejected with an alternative reservation proposal and the proposed reservation is rejected without an alternative proposal.

6.(previously presented) The method of claim 5, wherein the negotiation further comprises said at least one receiver device further including in said DRP-Response one of the items selected from the group consisting of at least one alternative available time proposal for the reservation and information of at least one alternative available time during the superframe.

7.(previously presented) The method of claim 1, further comprising including in the beacon frame of the first device a starting time of the reservation relative to a reference point selected from the group consisting of the TBTT of the first device, the BPST of the beacon period in which the first device is transmitting the beacon frame, the beginning of the superframe, a time period of the superframe, and a time slot of the superframe.

8.(previously presented) The method of claim 7, wherein:

the starting time of the reservation is given relative to said reference point in the next following superframe, in which said first device will transmit its next beacon frame; and

if proposed by the receiver device, the at least one alternative available time for the reservation is given relative to a reference point in the next following superframe, in which said

receiver device will transmit its next beacon frame.

9.(previously presented) The method of claim 1, further comprising maintaining by each device of said plurality of devices a table of all planned reservations received or sent by the device.

10.(previously presented) The method of claim 1, further comprising:

a receiver device of said reservation sending a poll packet to the sender device;

upon receipt of the poll packet, the sender device sending at least one data packet to the receiver device; and

the receiver device acknowledging receipt of at least one data packet by transmitting an acknowledgement (ACK) packet.

11.(previously presented) The method of claim 1, further comprising:

defining said superframe as comprising a plurality of medium access time slots; and

defining a reservation as a starting time slot of said plurality of medium access time slots and a duration as a number of medium access time slots.

12.(previously presented) The method of claim 1, further comprising:

defining said superframe as comprising a plurality of time units; and

defining a reservation as a starting time in time units and a duration as a number of time units.

13.(previously presented) The method of claim 1, further comprising:

defining said superframe as comprising a plurality of medium access time slots; and

defining a reservation as at least one bit in a bitmap comprising at least one bit per each medium access time slot of said plurality of medium access time slots.

14.(previously presented) The method of claim 1, further comprising:

defining said superframe as comprising a plurality of medium access time slots; and

defining a reservation as at least one element selected from the group consisting of a reservation period, a reservation offset, a reservation period offset, a reservation duration, a bitmap of at least one medium access time slot and a type of reservation.

15.(previously presented) The method of claim 1 further comprising defining a reservation as one element selected from the group consisting of:

a plurality of reservations per superframe and valid for a single superframe,

a plurality of reservations per superframe and valid for a plurality of superframes,

single reservation per superframe and valid for a single superframe, and

single reservation per superframe and valid for a plurality of superframes.

16.(previously presented) The method of claim 6, wherein said at least one alternative available time for the reservation is signalled by means of an availability bitmap having at least one bit per time slot to indicate the availability of the time slot.

17.(previously presented) The method of claim 6, wherein said at least one alternative available time for the reservation is signalled by means of at least one element selected from the group consisting of reservation period, reservation offset, reservation period offset, reservation duration, bitmap having at least one bit per time slot to indicate the availability of the time slot.

18.(previously presented) The method of claim 2, further comprising implicitly negotiating the reservation using a first beacon frame of the sender device and a first beacon frame of the receiver device.

19.(previously presented) The method of claim 1, further comprising including availability information in a beacon frame of a device.

20.(previously presented) The method of claim 5, further comprising the initiator device completing the negotiation with a transmission of a DRP Complete message.

21.(previously presented) The method of claim 5, further comprising the sender device terminating the reservation.

22.(previously presented) The method of claim 21, further comprising a device terminating a reservation that was initiated by an explicit negotiation, by transmission of a termination command.

23.(previously presented) The method of claim 22, further comprising the receiver device acknowledging the termination command of a unicast stream by transmission of an Immediate Acknowledgment (Imm ACK) frame.

24.(previously presented) The method of claim 22, further comprising sending a termination command by all devices that had previously included the reservation in a beacon frame.

25.(previously presented) The method of claim 2, wherein the beacon frame of the transmitting and including comprises a distributed reservation protocol (DRP) information element (IE) that includes information regarding the position of at least one reservation in the superframe.

26.(previously presented) The method of claim 22, further comprising terminating a reservation by performing one selected from the group consisting of:

removing the reservation IE from a current beacon frame and all subsequent beacon frames, and

setting the duration field of the reservation IE to zero in a current beacon frame and removing the reservation IE from subsequent beacon frames.

27.(previously presented) The method of claim 1, wherein:

the transmitting includes in the beacon frame information of a reservation selected from the group consisting of a starting point and duration, and a bitmap; and

the including is optional.

28.(previously presented) The method of claim 1, further comprising respecting the reservation by all devices receiving a beacon frame that includes the reservation.

29.(previously presented) The method of claim 1, further comprising:

including information on a direction of the planned transmission in the beacon frame; and

only devices within a transmission range of a receiver device respecting the reservation, in case of a unidirectional planned transmission.

30.(previously presented) The method of claim 25, wherein only the receiver device performs the including to include the reservation IE in the beacon frame.

31.(previously presented) The method of claim 25, wherein only receiver devices and all 1-hop neighbor devices of receiver devices perform the including to include the reservation IE in the beacon frame.

32.(previously presented) The method of claim 25, wherein the sender device, receiver devices, and all 1-hop neighbor devices of the sender device and receiver devices perform the including to include the reservation IE in a beacon frame.

33.(previously presented) The method of claim 27, further comprising the receiver device of a reservation performing:

in case of a Soft Reservation, starting an own transmission if the sender device does not use the reserved time;

in case of a Hard Reservation, not accessing the medium if the sender device of the planned transmission does not use the reserved time; and

in case of a Beacon Period Reservation, reserving the time for beacon transmission only.

34. (canceled)

35.(previously presented) A wireless device that reserves the medium in a distributed manner, comprising:

an antenna for sending and receiving messages over a wireless medium;

a receiver coupled to the antenna to receive messages transmitted over the wireless medium;

a transmitter coupled to the antenna to transmit messages over the wireless medium;

a distributed reservation processing module to perform distributed reservation of the medium;

a processor to divide time into a sequence of at least one superframe, each said superframe having at least one beacon period that starts at a target Beacon Period Start Time (BPST) and includes at least one beacon slot, said beacon period being followed in the superframe by a data transmission phase, and coupled to:

the transmitter and the receiver to send and receive, respectively, beacon frames during said beacon period and data during said data transmission phase of the superframe,

the distributed reservation processing module to

manage beacon slot occupancy and data transmission phase reservations;

format a beacon frame for transmission in the at least one beacon slot, such that the beacon frame includes a reservation of the medium by the device for data transmission during the data transmission phase, and

format a beacon frame for transmission in the at least one beacon slot that responds to reservations received over the medium.

36.(previously presented) The wireless device of claim 35, wherein:

each superframe further comprises a plurality of medium access slots allocated between said beacon period and said data transmission phase;

and further comprising

a bitmap operably connected to said processor and arranged to have at least one bit that corresponds to a slot of said plurality of medium access slots, and

a memory operably connected to said processor and arranged to store a reservation table of all planned reservations received or sent by the device; and

said distributed reservation protocol (DRP) processing module further configured to

set and reset said at least one bit of said bitmap in accordance with reservations of the medium for data transmission and beacon slot occupancy, and

store and delete reservations sent and received by the device in the reservation table of the memory.

37.(previously presented) A wireless device for distributed reservation of the medium, comprising:

an antenna for sending and receiving messages over a wireless medium;

a receiver coupled to the antenna to receive medium reservation messages transmitted over the wireless medium;

a transmitter operatively coupled to the antenna to transmit medium reservation messages over the wireless medium;

a distributed reservation processing module to perform distributed reservation of the medium; and

a processor coupled to the distributed reservation processing module, a distributed reservation protocol (DRP) bitmap, and a memory including a DRP reservation table, said processor using the distributed reservation processing module, the DRP bitmap, and the DRP reservation table to divide time into a sequence of at least one superframe, and transmitting in the superframe at a target beacon transmission time (TBTT) a beacon frame that includes a reservation for a planned transmission by a sender device during the superframe.

IX. EVIDENCE APPENDIX

No evidence has been submitted pursuant to §§ 1.130, 1.131, or 1.132 of this title nor any other evidence entered by the examiner and relied upon by Appellants in the appeal.

X. RELATED PROCEEDINGS APPENDIX

Appellants are not aware of any appeals or interferences related to the present application.